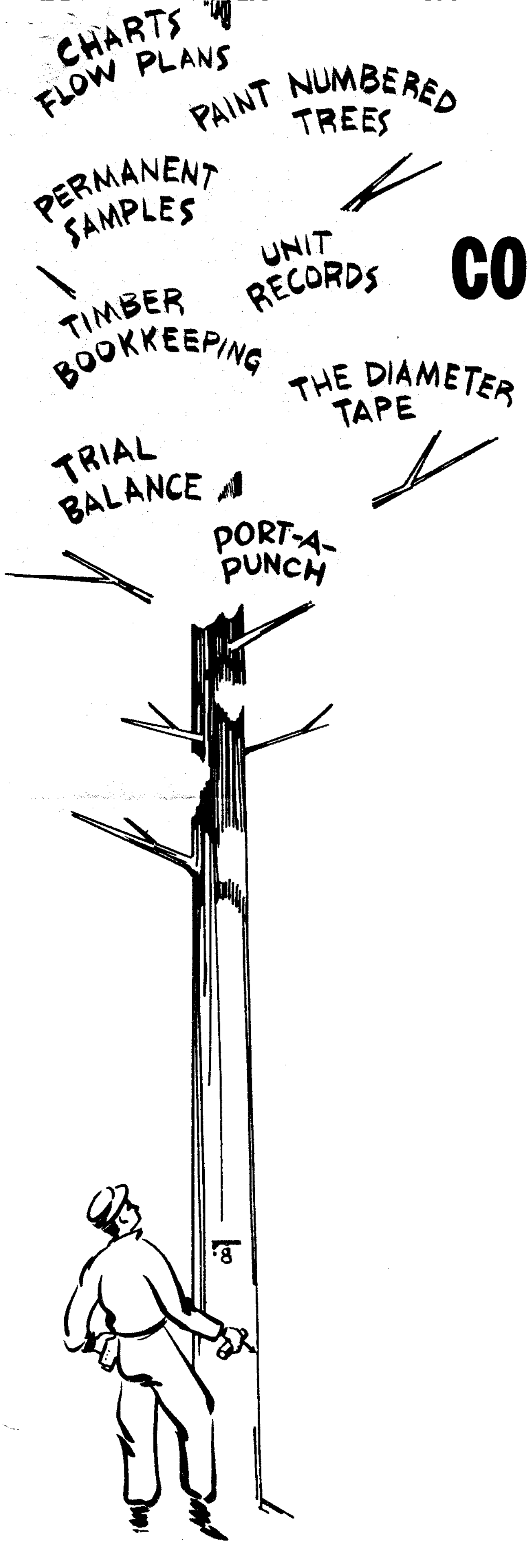


FOREST CONTROL
by
CONTINUOUS INVENTORY

"Today I have grown taller from walking with the trees."
...Karle Wilson

Milwaukee, Wis. October, 1965 No. 139

On many fronts, man is blindly in conflict with nature, too often overlooking the fact that the animal life of the earth, its interrelationships, its preservation, is wrapped up directly with not only his own well being, but with his peace of mind. For it is man's earth now. One wonders what obligations may accompany this infinite possession.

Fairfield Osborn, in
"Our Plundered Planet"

The Forester

SHORT COURSE AT PURDUE ON COMPUTER PROGRAMMING IN FORESTRY

In response to requests from many foresters doing inventory and research, and finding a need to do their own computer programming, Purdue's Department of Forestry and Conservation is offering a 10-day short course in the winter and spring of 1966. Registration for the January 24 to February 2 section, announced in September, was so heavy that a second section has been scheduled for March 28 to April 6.

The chief content of the course will be training in writing programs in FORTRAN IV. This is the latest and most powerful version of the FORTRAN compiler language and is a language now in use on most current equipment, and will be used on the new generation of computers, such as the IBM 360 series. FORTRAN IV contains all the types of statements found in earlier versions, so that the ability gained at the short course can be easily adapted to computer installations still using earlier versions. The course will not attempt to cover machine language, report generators, autocoder, or any basic assembly language, except for brief mention in description of machine structure.

The course will include daily runs of programs written by enrollees, so upon completion of the course they will have an ability to write operating programs and to continue learning the preparation of more complex programs. All examples in the course will be from forestry.

A folder on the short course may be obtained by writing the Department of Forestry and Conservation, Purdue University, Lafayette, Indiana.

Richard N. Smith
Forester

FOREWORD

The rapidly increasing value of high-grade hardwood veneer in the northern Lake States encourages a more detailed estimate of the veneer content of standing trees. At present there are two serious limitations to this task.

The first difficulty is the inability of most cruisers to judge confidently the internal quality of veneer in standing trees. A contributing factor for many cruisers is the common lack of knowledge of the effect of sites, soils and localities on the quality grade of timber stands.

I feel that experience over long periods of time, and the application of research developed veneer grade reduction factors for veneer estimates by species and locality, will eventually overcome this problem.

The second limitation deals with the mechanics of calculating board foot contents of veneer sections in standing trees. This problem can be reduced by the application of the attached tables showing the distribution of volume in sawlog trees. Direct field use of these percentages, with the International Look-Up Volume Table in CFI Letter No. 129 will contribute to the solution of this volume problem.

CAL STOTT
Forester

TABLE 1

DETAILED DISTRIBUTION OF GROSS INTERNATIONAL VOLUMES IN SAWLOG TREES

This tabulation is similar to, but in greater detail than the cull deduction chart in CFI Letter No. 76. Values in this new chart give approximate cull deductions expressed in percent per linear foot of sawlog length.

To use this table, first determine the length and location of each cull section in the usable part of the bole. Next add these percentage values together and double the total. The answer is the cull deduction for cut-out sections and long butts. To this cull percent add the percent of loss due to sweep, crook and minor defect to obtain the total cull deduction for the sawlog tree.

This table applied to trees of average Girard Form Class will give the gross volume percent in each sawlog, veneer or cull section of the tree.

LENGTH OF CULL SECTION IN FEET ABOVE STUMP	8'	10'	12'	14'	16'	18'	20'	22'	24'	26'	28'	30'	32'	34'	36'	38'	40'	42'	44'	46'	48'	50'	52'	54'	56'	58'	60'	62'	64'	LENGTH OF CULL SECTION IN FEET ABOVE STUMP
64																													0.6	64
62																												0.6	0.6	62
60																											0.7	0.7	0.7	60
58																										0.8	0.8	0.8	0.8	58
56																									0.9	0.9	0.9	0.9	0.9	56
54																								0.9	0.9	0.9	0.9	0.9	0.9	54
52																							1.0	1.0	1.0	1.0	1.0	1.0	1.0	52
50																						1.0	1.1	1.1	1.1	1.1	1.1	1.1	1.1	50
48																					1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	48
46																				1.2	1.2	1.2	1.2	1.2	1.1	1.1	1.1	1.1	1.1	46
44																			1.3	1.3	1.3	1.3	1.3	1.2	1.2	1.2	1.2	1.2	1.2	44
42																		1.5	1.4	1.4	1.4	1.4	1.4	1.3	1.3	1.3	1.3	1.3	1.3	42
40																	1.6	1.5	1.5	1.5	1.5	1.5	1.5	1.4	1.4	1.4	1.4	1.4	1.4	40
38																1.7	1.7	1.6	1.6	1.6	1.6	1.5	1.5	1.5	1.5	1.4	1.4	1.4	1.4	38
36															1.9	1.8	1.8	1.7	1.7	1.7	1.6	1.6	1.5	1.5	1.5	1.5	1.5	1.5	1.5	36
34														2.0	1.9	1.9	1.9	1.8	1.8	1.7	1.7	1.6	1.6	1.6	1.5	1.5	1.5	1.5	1.5	34
32													2.2	2.1	2.1	2.0	2.0	1.9	1.9	1.8	1.8	1.7	1.7	1.7	1.7	1.6	1.6	1.6	1.6	32
30												2.3	2.3	2.2	2.2	2.2	2.1	2.0	2.0	1.9	1.9	1.8	1.8	1.7	1.7	1.7	1.6	1.6	1.6	30
28											2.5	2.4	2.4	2.3	2.2	2.2	2.1	2.1	2.0	2.0	1.9	1.9	1.8	1.8	1.8	1.7	1.7	1.7	1.7	28
26										2.8	2.7	2.6	2.5	2.4	2.3	2.3	2.2	2.2	2.1	2.0	2.0	1.9	1.9	1.8	1.8	1.8	1.7	1.7	1.7	26
24									3.1	2.9	2.8	2.7	2.6	2.5	2.4	2.3	2.2	2.2	2.2	2.1	2.1	2.0	2.0	1.9	1.9	1.8	1.8	1.8	1.8	24
22								3.4	3.3	3.1	2.9	2.8	2.7	2.6	2.5	2.4	2.3	2.3	2.2	2.2	2.2	2.1	2.1	2.0	2.0	1.9	1.9	1.9	1.9	22
20							3.8	3.6	3.4	3.2	3.1	2.9	2.8	2.7	2.6	2.5	2.4	2.4	2.4	2.3	2.3	2.2	2.2	2.1	2.1	2.0	2.0	2.0	2.0	20
18						4.3	4.0	3.8	3.6	3.4	3.2	3.0	2.9	2.8	2.8	2.7	2.6	2.5	2.4	2.4	2.3	2.3	2.2	2.2	2.1	2.1	2.1	2.1	2.0	18
16					4.9	4.6	4.2	3.9	3.7	3.5	3.3	3.1	3.0	2.9	2.8	2.8	2.7	2.6	2.5	2.5	2.4	2.4	2.3	2.3	2.2	2.2	2.2	2.1	2.1	16
14				5.6	5.3	4.8	4.5	4.2	3.9	3.7	3.5	3.3	3.2	3.1	3.0	2.9	2.8	2.7	2.6	2.5	2.4	2.4	2.3	2.3	2.3	2.2	2.2	2.1	2.1	14
12			6.3	6.0	5.6	5.1	4.7	4.4	4.1	3.9	3.7	3.6	3.4	3.3	3.1	3.0	2.9	2.8	2.7	2.7	2.6	2.6	2.5	2.5	2.4	2.4	2.3	2.3	2.2	12
10		7.0	6.7	6.3	6.1	5.6	5.1	4.7	4.4	4.2	4.0	3.8	3.6	3.5	3.3	3.2	3.1	3.0	2.9	2.8	2.7	2.6	2.6	2.5	2.5	2.4	2.4	2.3	2.3	10
8	9.0	8.3	7.8	7.2	6.4	5.8	5.4	5.0	4.7	4.4	4.2	4.0	3.8	3.6	3.5	3.3	3.2	3.1	3.0	2.9	2.8	2.8	2.7	2.7	2.6	2.5	2.5	2.4	2.4	8
6	11.0	9.6	8.4	7.5	6.9	6.3	5.8	5.4	5.0	4.7	4.5	4.3	4.0	3.8	3.6	3.4	3.3	3.2	3.1	3.0	2.9	2.9	2.8	2.7	2.6	2.6	2.6	2.5	2.4	6
4	13.5	11.5	9.8	8.4	7.2	6.6	6.1	5.7	5.3	5.0	4.7	4.5	4.2	4.0	3.8	3.6	3.5	3.4	3.3	3.2	3.1	3.0	2.9	2.9	2.8	2.8	2.7	2.6	2.5	4
2	16.5	13.5	11.0	9.0	7.6	6.9	6.4	5.9	5.5	5.2	4.9	4.7	4.4	4.2	4.0	3.8	3.6	3.5	3.4	3.3	3.2	3.1	3.0	2.9	2.9	2.8	2.7	2.6	2.6	2
	8	10	12	14	16	18	20	22	24	26	28	30	32	34	36	38	40	42	44	46	48	50	52	54	56	58	60	62	64	

USABLE LENGTH IN FEET TO THE NEAREST FULL TWO-FOOT INTERVAL

With CFI Letter No. 139

TABLE 2

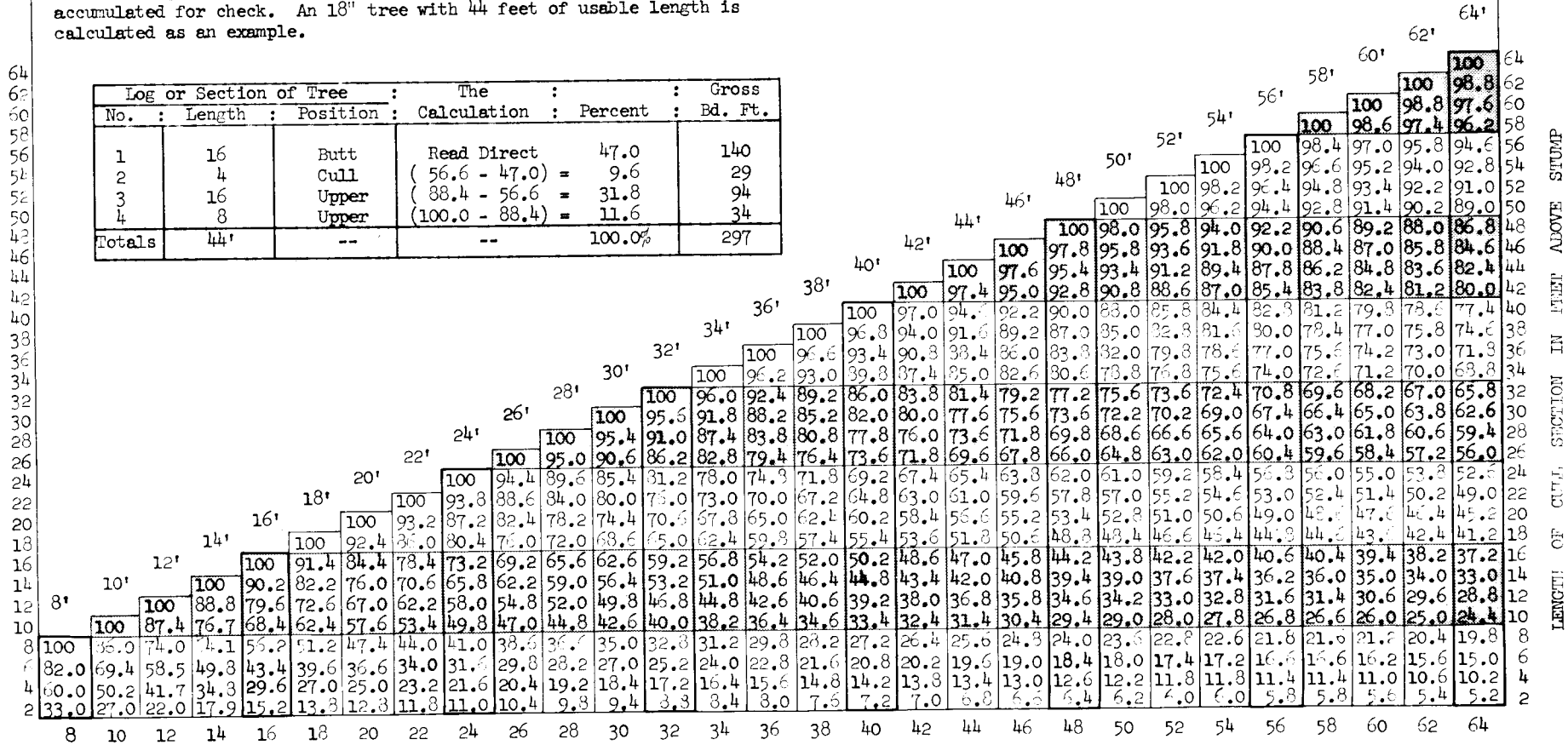
ACCUMULATED DISTRIBUTION OF GROSS INTERNATIONAL VOLUMES IN SAWLOG TREES

Table 2 doubles the percentages in Table 1, and accumulates them in 2-foot sawlog length intervals. From this table and the International Look-Up Volume Table in CFI Letter No. 129, the gross scale for each sawlog, veneer or cull section of the tree may be calculated.

The total percentage for the butt section of the tree is read directly from Table 2. The percentage for sections above the butt is determined by subtraction. Percentages for all sections combined check out to 100%.

The total gross volume for the tree is read from the Look-Up Volume Table. Percentages for each section are multiplied by this total gross scale to obtain the gross volume for each section. These gross volumes are accumulated for check. An 18" tree with 44 feet of usable length is calculated as an example.

Log or Section of Tree			The		Gross
No.	Length	Position	Calculation	Percent	Bd. Ft.
1	16	Butt	Read Direct	47.0	140
2	4	Cull	(56.6 - 47.0) =	9.6	29
3	16	Upper	(88.4 - 56.6 =	31.8	94
4	8	Upper	(100.0 - 88.4) =	11.6	34
Totals	44'	--	--	100.0%	297



With CFI Letter No. 139